

# 理學院

## 107 學年度第一學期模組化課程

太陽風暴

Solar Storms

授課教師：

談永頤

國立成功大學太空與電漿科學研究所

課程類別	學分數	選必修	開課人數	開課日期及上課時間	上課地點
講義	1	選修	35	2018/09/03(一)-2018/09/07(五) 下午 14:00-17:00	成功校區

先修課程或先備能力：

無

建議修課年級：

大二、大三、大四、碩士班

建議修課學生背景：

適合各領域學生修習

教學方法：

講授 100%

評量方式：

小論文撰寫 75%、出席率 25%

補充說明：

小論文撰寫以整理課程內容為主

學習規範：

無

課程概述：

This course aims to discuss what solar storms are, how they occur, and how they may affect us. Rather than describing only the solar storm phenomena, the course utilizes basic concepts in plasma physics to explain how changes in the geospace (near-Earth space) environment can be triggered by solar storms. As these changes include processes that are related to space weather, the course also discusses how observations of solar storms are used in space weather forecast.

課程進度：

堂次	時數	進度說明
1	3	Phenomena of solar storms; physics of solar storms; do solar storm harm humans? why or why not?
2	3	Effects of solar storms in geospace; basic concepts in plasma physics
3	3	Effects of solar storms in geospace; basic concepts in plasma physics
4	3	Effects of solar storms in geospace; basic concepts in plasma physics
5	3	What is space weather? Relation of solar storms with space weather forecast

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### 課程學習目標：

- 完整性：** The knowledge of plasma physics that is required for the topic will be taught in this course
- 聚焦性：** Although the physical mechanisms in geospace are very complicated, this course focuses on those mechanisms related to the effects of solar storms only.
- 跨域性：** This course covers the fields of space physics and plasma physics. It provides basic knowledge to make it easier for students to pursue further study in these two fields.
- 當代性：** The materials of the course are based on our current understanding of the topic.

### 課程的重要性、跨域性與時代性：

1. To understand what solar storms are and how they occur
2. To understand how solar storms can affect us
3. To understand why observations of solar storms are important to space weather forecast

### 其他備註：

#### 課程教材：

Lecture notes in English to be presented on the blackboard or in PowerPoint. Only notes that are in PowerPoint will be provided to students as handouts.

#### 參考書目：

Physics of Space Plasmas: an Introduction, George K. Parks